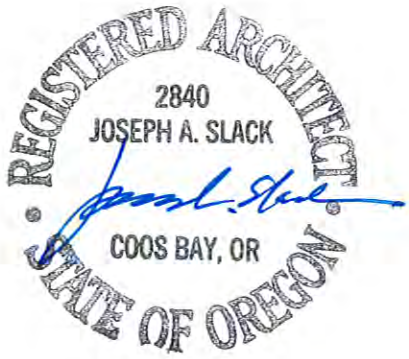
ADDENDUM #2 - DECEMBER 23, 2011



RE: **BAY AREA HOSPITAL BUILDING EXPANSION**
MRI Upgrade
Project #11.48

FROM: HGE INC., Architects, Engineers, Surveyors & Planners
375 Park Avenue
Coos Bay, Oregon 97420
541-269-1166

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Documents dated December 9, 2011, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of **3** pages together with the following attachments:

- Drawing AD#2 – Equipment Room (1 page)
- Drawing AD#2 – Mirror Trim Detail (1 page)
- Drawings RM-01 to RM-06 (6 pages)
- Drawings RE-01 to RE-03 (3 pages)
- EmpowerMR Injector System Site Survey and Site Installation Instructions (21 pages)

CHANGES TO PROJECT MANUAL

1. Section 01-1000, Summary, subparagraph 1.04: Add the following paragraph:

   "B. EmpowerMR Injector System, furnished by Owner - Contractor to provide rough-in. See attached EmpowerMR Injector System Site Survey and Site Installation Instructions. Contractor to install dedicated injector control penetration panel within shielding wall system, refer to attached drawing for location."

2. Section 01-2300, Alternates: Delete Section. Refer to Hoffman Construction Company's list of Alternates found within their Bid Package 5 – MRI Upgrade, Addendum No. A.

3. Section 06-4100, Architectural Wood Casework, subparagraph 2.06: Add the following:

   "G. All Accessories in MRI Room must be non-ferrous."

4. Section 06-4100, Architectural Wood Casework, subparagraph 2.07: Add the following:

   "G. All Hardware in MRI Room must be non-ferrous."

5. Section 07-7346, Prevailing Wage Rates, subparagraph 1.01: Replace "July" with "January."

6. Door Schedule: Change Door 4 (by RF Manufacturer) to Door Type A (no window).

7. Section 08-8000, Glazing, subparagraph 2.01: Add the following paragraph:

   "D. Mirror Glass: Clear with silvering.

   1) Application(s): Where shown on A6.1.
   2) Type: Float glass.
   3) Thickness: 1/4 inch.
   4) Trim: 1 x 3 red oak trim, factory applied stain to match floor with clear varnish finish. Refer to Addendum Drawing
   5) Accessories: J-Channel, mirror clips (as needed), and mirror adhesive (chemically compatible with mirror coating and wall substrate)."

8. Section 09-2116, Gypsum Board Assemblies, subparagraph 3.05: Delete item "C."

9. Section 09-2116, Gypsum Board Assemblies, subparagraph 3.05.A.1: Replace "Level 4" with "Level 5."

10. Section 10-1101, Visual Display Boards, subparagraph 2.02.B: Replace "1/8 inch" with "1/4 inch".

11. Section 10-1101, Visual Display Boards, subparagraph 2.04.A: Replace "factory applied clear varnish finish" with "factory applied stain to match floor with clear varnish finish."

12. Section 13-4941, RF Shielding, paragraph a.2.03, add:

    "F. Install Owner-furnished dedicated penetration panel for Injector System.

    paragraph b.3.03, add:

    "B. Contractor to install floor shielding in existing 7/8 inch recess and provide fill as necessary for finish flooring to be level with adjacent non-shielded flooring at door thresholds."

CHANGES TO DRAWINGS

1. Sheet A2.3, Key Notes: Delete Key Note 7.

2. Sheet A3.1, Details 5 and 4/A3.1, Note: Floor shielding contractor to provide floor filler in addition to Dielectric Isolator and RF shielding. Finish flooring to be flush with adjacent flooring at door thresholds. Fill material shall be approved by RF shielding manufacturer. Delete note regarding cement based underlayment.

3. Sheet A6.1, Elevation 1/A6.1: Delete windows shown in RF shielded doors.

4. Sheets P0.0 – P4.1: Delete new medical gas piping or outlets work. All medical gas lines and outlets to remain. Contractor required to remove and reinstall existing medical gas outlets as required for the shielding installation.

5. Sheet M2.1: Add oxygen sensor in MRI Equipment Room 370, delete General Note 'E', and edit Key Note 3. Refer to attached Addendum Sheets RM-01 and RM-02.

6. Sheet M4.1:

    a. Edit Key Note 1 at Partial Roof Plan - HVAC regarding quench vent. Refer to Addendum Sheet RM-03.
    b. Modify title of Detail 2 per Addendum Sheet RM-04 (Quench Vent Duct System).
    c. Detail 3 - Quench Vent Cap: See Addendum Sheet RM-05 for added note.

7. Sheet M4.2: See clarification note per attached Addendum Sheet RM-06.

8. Sheet E0.0: See note per attached Addendum Sheet RE-01 regarding telecommunication conduit.

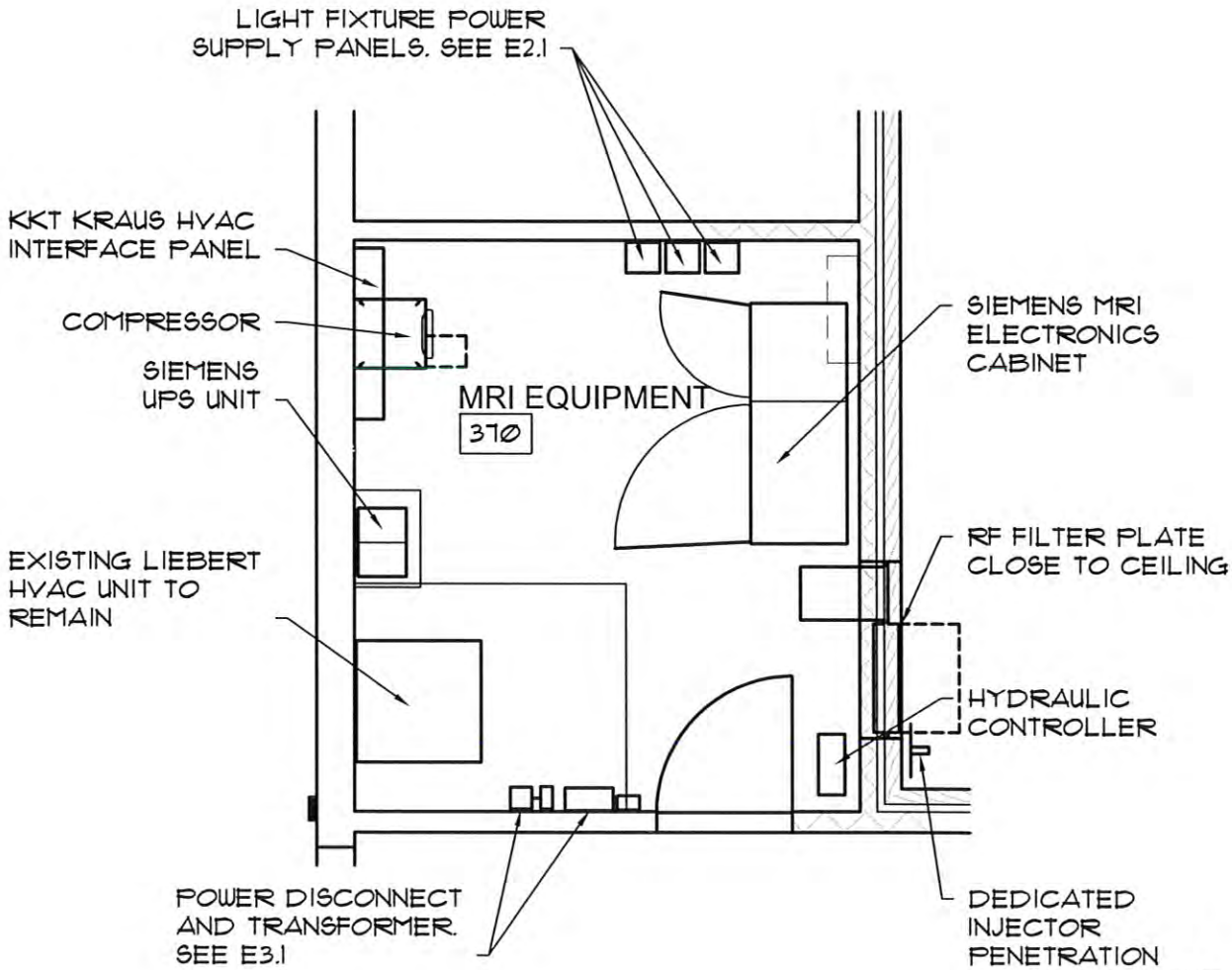
9. Sheet E3.1:

    a. Add/Change power receptacles in MRI Equipment Room and Control Room per attached Addendum Sheets RE-02 and RE-03.
    b. See Addendum Sheets for other additional notes/requirements.

END OF ADDENDUM

REGISTERED ARCHITECT
2840
JOSEPH A. SLACK
COOS BAY, OREGON
STATE OF OREGON

NOTE: THIS DRAWING IS FOR CLARIFICATION OF EQUIPMENT LOCATIONS IN MRI EQUIPMENT ROOM. REFER TO RESPECTIVE PLAN DRAWINGS FOR REQUIREMENTS.


LIGHT FIXTURE POWER SUPPLY PANELS. SEE E2.1
KKT KRAUS HVAC INTERFACE PANEL
COMPRESSOR
SIEMENS UPS UNIT
EXISTING LIEBERT HVAC UNIT TO REMAIN
MRI EQUIPMENT
370
SIEMENS MRI ELECTRONICS CABINET
RF FILTER PLATE CLOSE TO CEILING
HYDRAULIC CONTROLLER
POWER DISCONNECT AND TRANSFORMER. SEE E3.1
DEDICATED INJECTOR PENETRATION PANEL, 6" ABOVE FLOOR. FURNISHED BY CONTRACTOR, INSTALLED BY CONTRACTOR.

1a / A2.1 MRI EQUIPMENT ROOM 370

SCALE: 1/4" = 1'-0"

PROJECT: BAY AREA HOSPITAL MRI UPGRADE	11.48 / 12-22-11
TITLE: AD#2 - EQUIPMENT ROOM	

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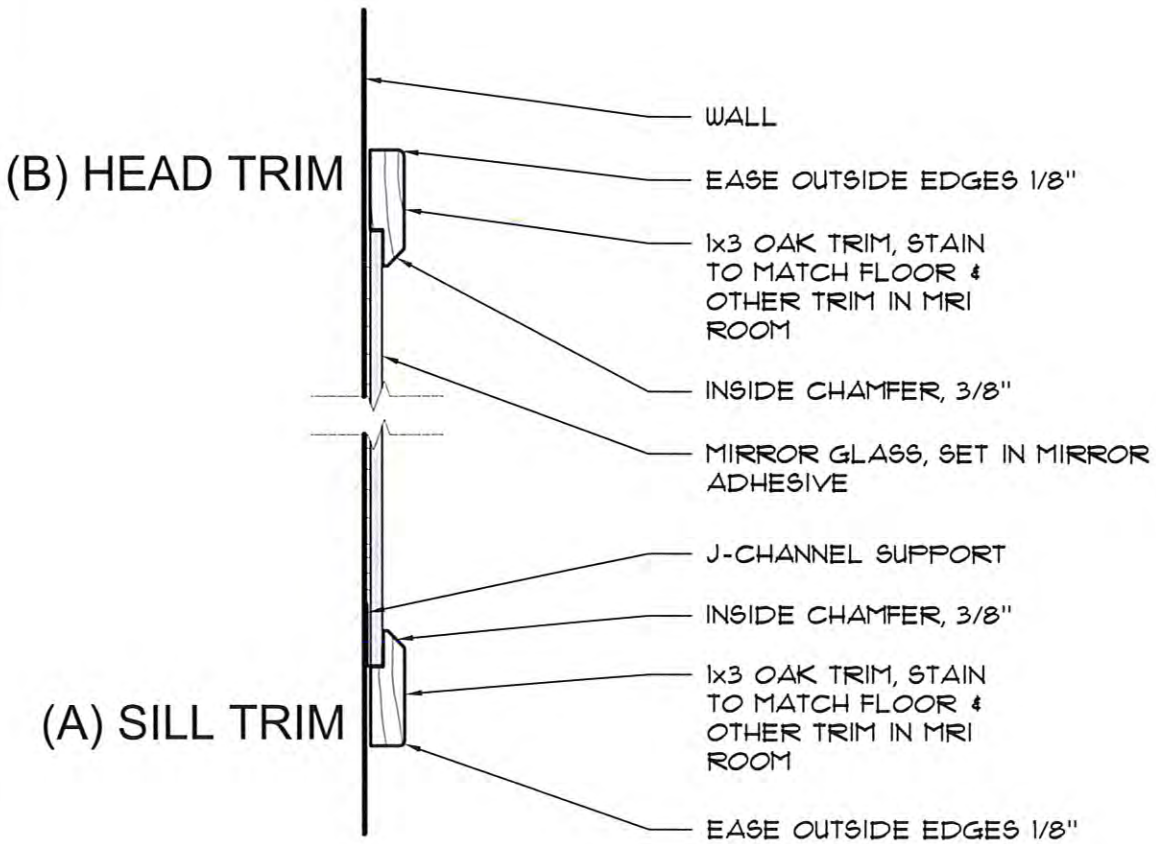
REGISTERED ARCHITECT
2840
JOSEPH A. SLACK
COOS BAY, OREGON
STATE OF OREGON


(B) HEAD TRIM
WALL
EASE OUTSIDE EDGES 1/8"
1x3 OAK TRIM, STAIN TO MATCH FLOOR & OTHER TRIM IN MRI ROOM
INSIDE CHAMFER, 3/8"
MIRROR GLASS, SET IN MIRROR ADHESIVE
J-CHANNEL SUPPORT
INSIDE CHAMFER, 3/8"
1x3 OAK TRIM, STAIN TO MATCH FLOOR & OTHER TRIM IN MRI ROOM
(A) SILL TRIM
EASE OUTSIDE EDGES 1/8"

6 / A5.1

MIRROR TRIM DETAIL

SCALE: 3" = 1'-0"

PROJECT: BAY AREA HOSPITAL MRI UPGRADE	11.48
	12-22-11
TITLE: AD#2 - MIRROR TRIM DETAIL	

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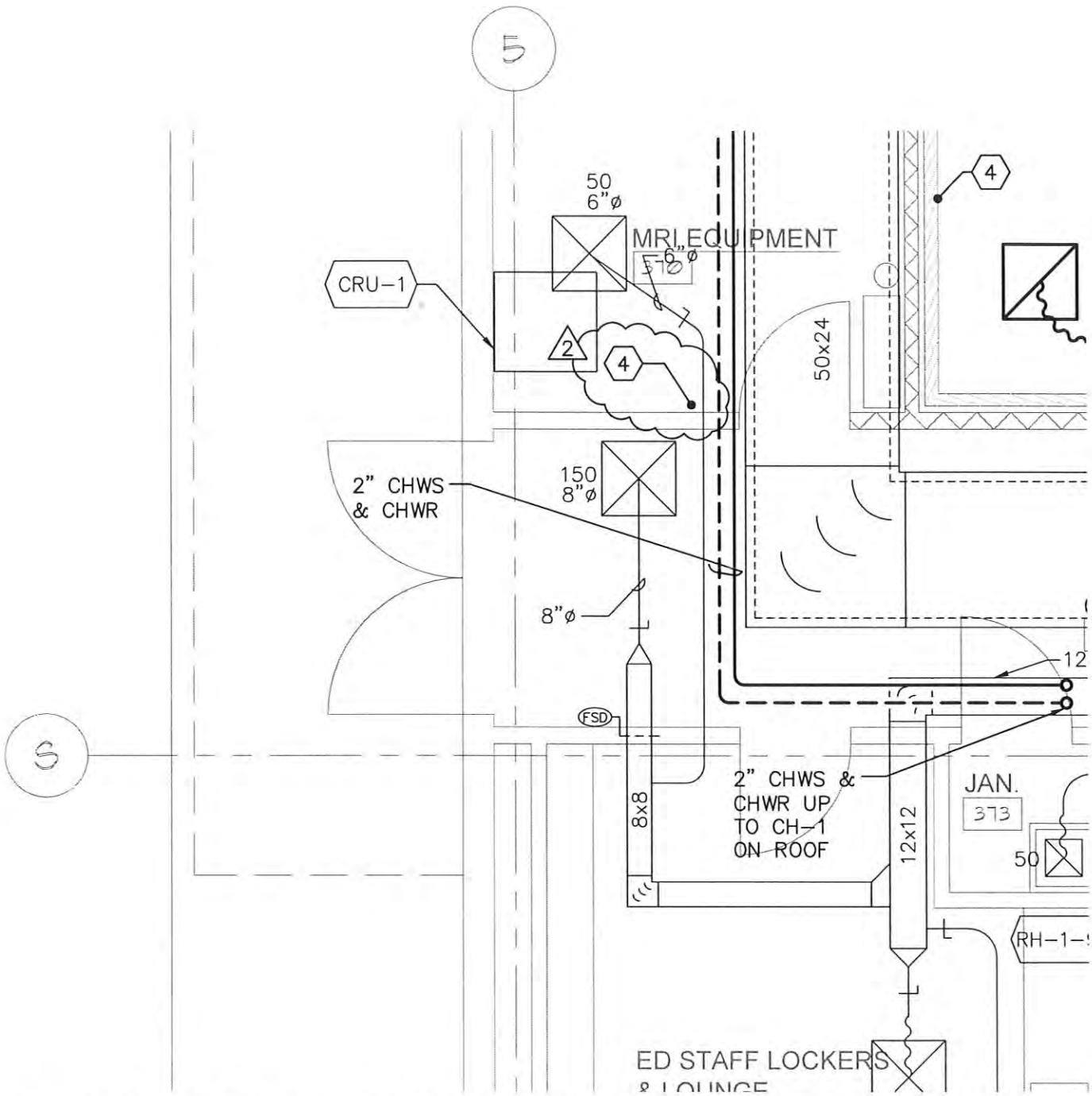

1 PARTIAL THIRD FLOOR PLAN - HVAC

0 2' 4' 8'

SCALE: 1/4"=1'-0"

PROJECT: BAY AREA HOSPITAL MRI UPGRADE	11.48
TITLE: RM-01 - ADDENDUM #2 REF M2.1	

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GENERAL SHEET NOTES

A. ALL DUCTWORK WITHIN RF SHIELD TO BE ALUMINUM CONSTRUCTION.

B. COORDINATE GRILLE/DIFFUSER LOCATION WITH ARCHITECTURAL REFLECTED CEILING PLAN.

C. COORDINATE FINAL PIPE ROUTING IN MRI EQUIPMENT 370 WITH ELECTRICAL EQUIPMENT AND CABLE TRAYS.

D. PROVIDE MINIMUM 5' FLEX DUCT ON DIFFUSER/GRILLE CONNECTIONS. MAXIMUM 7'.

2 E.

SHEET KEYNOTES

1 CONNECT DUCTS TO WAVE GUIDE PROVIDED BY RF SHIELD MANUFACTURER.

2 CONNECT CHWS AND CHWR TO MRI EQUIPMENT PER SIEMENS MRI EQUIPMENT DRAWINGS. CONTRACTOR SHALL VERIFY THAT TOTAL ONE-WAY PIPE LENGTH IS LESS THAN 82 FEET AND LESS THAN 25 90° ELBOWS ARE USED TO CONNECT THE KRAUS CHILLER (CH-1) AND THE SEIMENS INTERFACE PANEL (IFP). REFER TO SIEMENS MRI EQUIPMENT DRAWINGS. OTHERWISE USE 2-1/2" CHILLED WATER SUPPLY & RETURN PIPING.

2 3 6" CRYOGEN VENT. CONNECT TO MRI EQUIPMENT PER SIEMENS REQUIREMENTS AND ROUTE VENT THROUGH EXISTING ROOF PENETRATION. ADJUST ROOF PENETRATION AS NECESSARY AND COORDINATE WITH STRUCTURAL. REFER TO SIEMENS MRI EQUIPMENT DRAWINGS AND SHEET M401.

4 OXYGEN MONITORING SENSOR TO BE CONNECTED TO DDC SYSTEM.. WIRING TO BE ROUTED THROUGH RF-FILTER. COORDINATE WITH ELECTRICAL AND EQUIPMENT MANUFACTURER.

PROJECT:
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TITLE: RM-02 - ADDENDUM #2
REF M2.1

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1 PARTIAL ROOF PLAN - HVAC

1/8" = 1- 0"

⬡ DETAIL KEYNOTES

1 DEMOLISH EXISTING QUENCH VENT DISCHARGE AND ROUTE NEW VENT THROUGH EXISTING ROOF PENETRATION. REFER TO 2/M4.1, 3/M4.1 AS WELL AS SIEMENS MRI EQUIPMENT DRAWINGS FOR QUENCH VENT INSTALLATION REQUIREMENTS AND GUIDELINES.

2 DEMOLISH EXISTING EQUIPMENT AND REPLACE WITH NEW KRAUS CHILLER PROVIDED BY SIEMENS (CH-1). CHW PUMP INCLUDED IN KRAUS CHILLER SYSTEM.

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11.48

TITLE: RM-03 - ADDENDUM #2
REF M4.1

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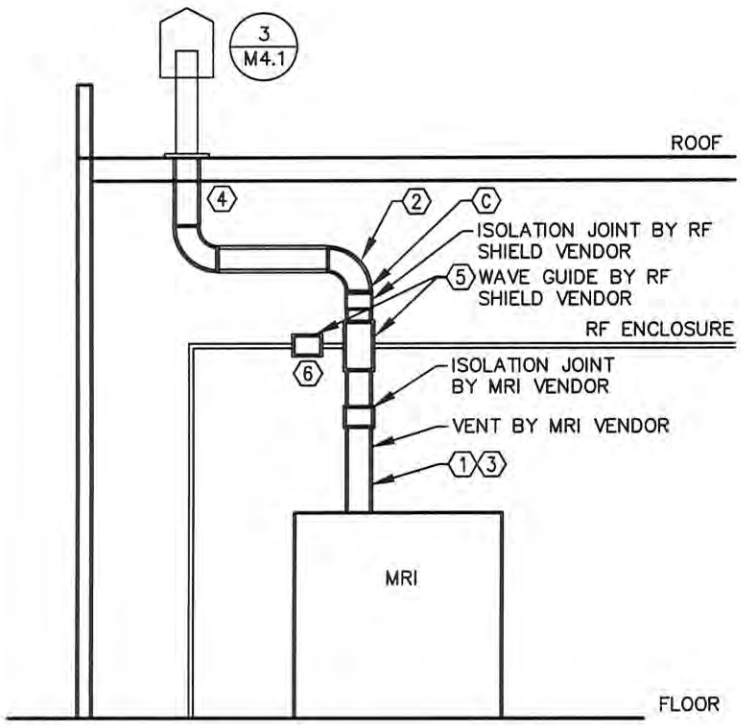

⬡ DETAIL KEYNOTES

1 FULLY WELDED 6" 16 GA. SS OR ALUMINUM QUENCH VENT. ISOLATE VENT.

2 PROVIDE 1850 LB AXIAL AND LONGITUDINAL THRUST RESTRAINTS AT EACH CHANGE OF DIRECTION. CONTRACTOR TO SUBMIT ENGINEERED SHOP DRAWINGS FOR ALL RESTRAINTS AND ATTACHMENTS, STAMPED BY REGISTERED STRUCTURAL ENGINEER IN STATE OF OREGON.

3 PROVIDE 1–1/2" MIN PVC JACKETED INSULATION.

4 ROUTE 6" VENT THROUGH EXISTING ROOF PENETRATION.

5 RF VENDOR TO PROVIDE ALL VENT PIPING FROM MRI CONNECTION TO WAVEGUIDE. COORDINATE ISOLATION SLEEVE INSTALLATION TO AVOID CONTACT WITH FINISHED CEILING.

6 INSTALL WAVEGUIDE AT ENCLOSURE PENETRATION TO ALLOW FOR ROOM DEPRESSURIZATION.

NOTES

A. INSTALLATION MUST COMPLY FULLY WITH MANUFACTURER DRAWINGS. NOTIFY ENGINEER OF ANY DISCREPANCIES.

2 QUENCH VENT DUCT SYSTEM

NO SCALE

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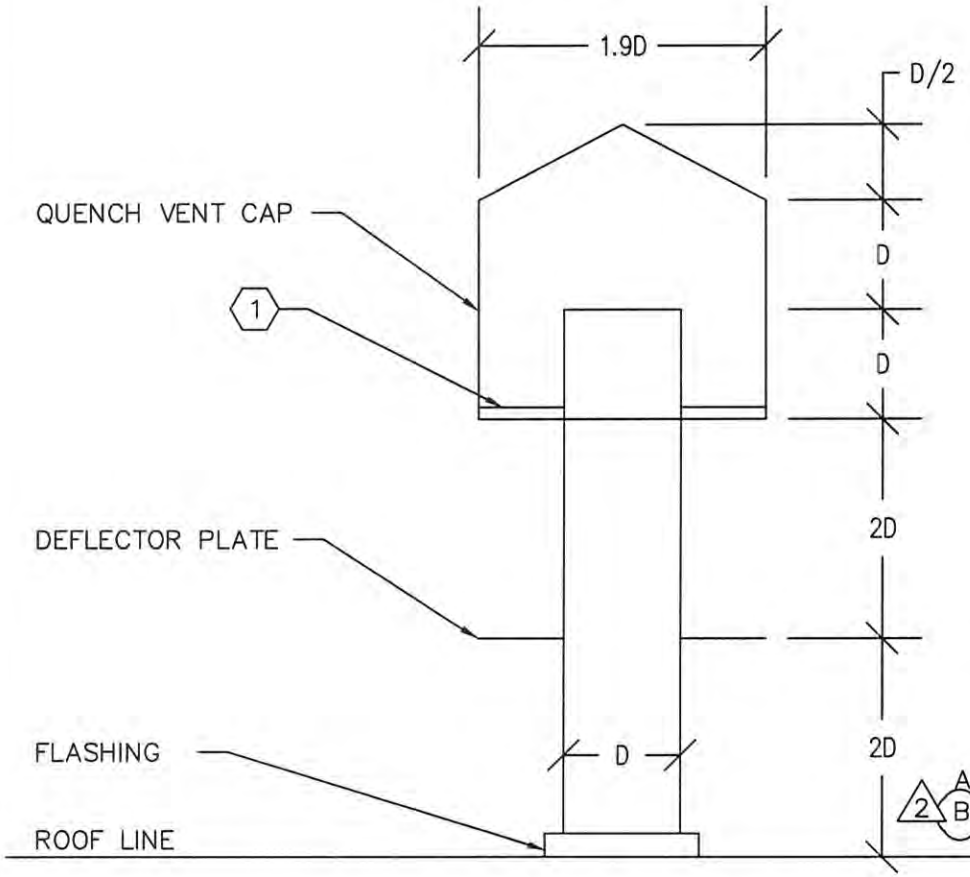
PROJECT: BAY AREA HOSPITAL
MRI UPGRADE

TITLE: RM-04 - ADDENDUM #2
REF M4.1



NOTES

2 A. REFERENCE SIEMENS DRAWINGS.
B. DEMOLISH EXISTING QUENCH VENT AND REPLACE.

⬡ DETAIL KEYNOTES

1 3/8" WIRE MESH 2.5 TIMES THE CROSS-SECTIONAL AREA OF THE QUENCH PIPE.

3 QUENCH VENT CAP

NO SCALE

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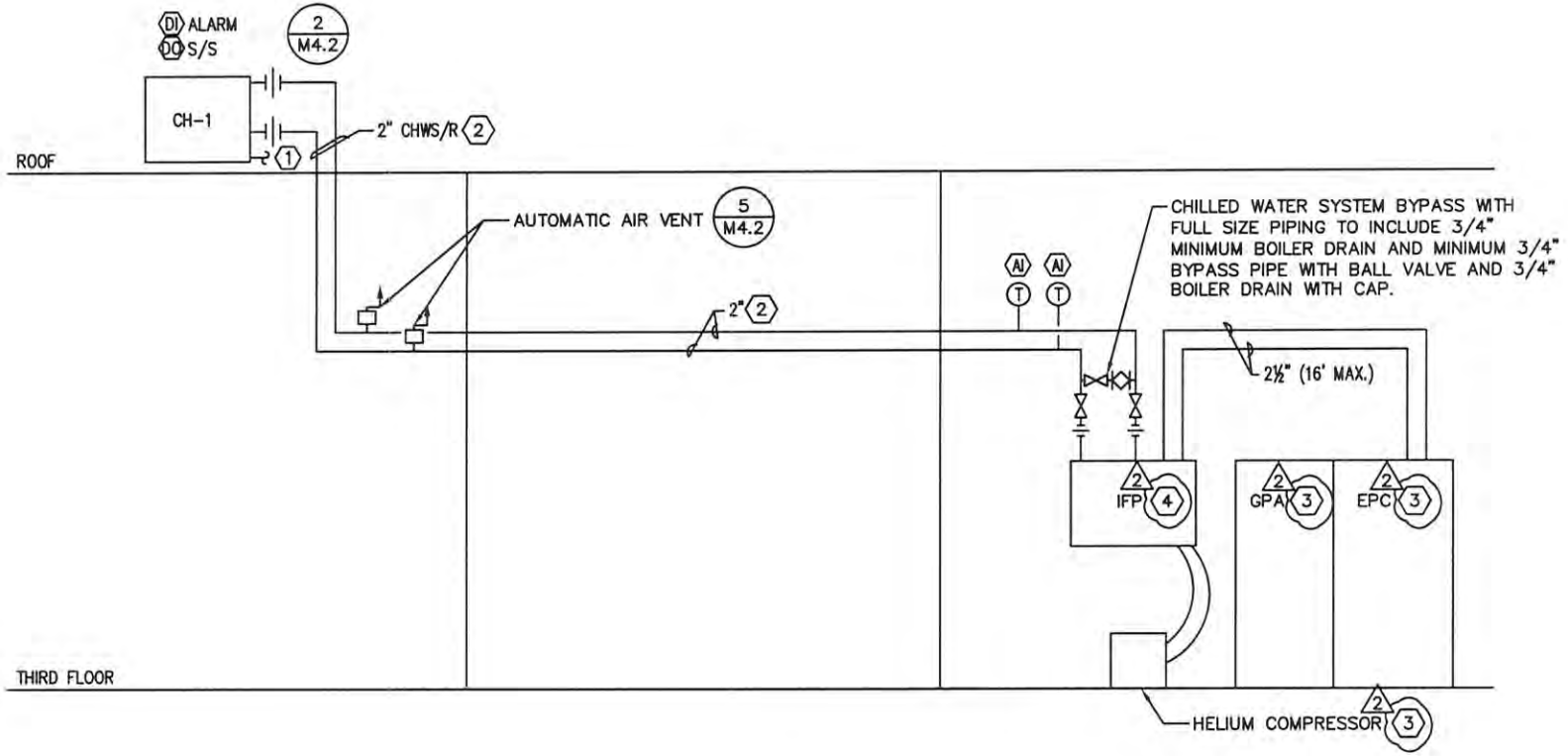
PROJECT: BAY AREA HOSPITAL
MRI UPGRADE

TITLE: RM-05 - ADDENDUM #2
REF M4.1



NOTES

A. ALL PIPING AND PLUMBING FIXTURES FURNISHED BY MECHANICAL CONTRACTOR.

B. REFER TO SIEMENS DRAWINGS.

⬡ DETAIL KEYNOTES

1 OVERFLOW DRAIN.

2 CONTRACTOR SHALL VERIFY THAT TOTAL ONE-WAY PIPE LENGTH IS LESS THAN 82 FEET AND LESS THAN 25 90° ELBOWS ARE USED TO CONNECT THE KRAUS CHILLER AND THE SIEMENS INTERFACE PANEL (IFP.) REF M-101. OTHERWISE USE 2-1/2" CHILLED WATER SUPPLY & RETURN PIPING.

3 SIEMENS SUPPLIED AND INSTALLED.

2 4 SIEMENS SUPPLIED AND CONTRACTOR INSTALLED.

1 PROCESS WATER SYSTEM AND CONTROL DIAGRAM

NO SCALE

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PROJECT: BAY AREA HOSPITAL MRI UPGRADE

TITLE: RM-06 - ADDENDUM #2 REF M4.2

ELECTRICAL SYMBOL LIST

Nurse Call

SA	NURSE CALL STAFF ASSIST CENTER
	NURSE CALL DOME LIGHT – WALL MOUNTED

Technology

REX	REQUEST TO EXIT DEVICE
C	CARD READER
	SMOKE DETECTOR
	WALL MOUNTED STROBE
S	SPEAKER

Telecommunications

	PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING SPACE AND DOUBLE GANG BOX WITH SINGLE GANG ADAPTER PLATE. PROVIDE CAT–6 MODULAR JACK (ORTRONICS OR–TJ600–XX) AND 6–PORT FACEPLATE. (ORTRONICS OR–40300545), COORDINATE JACK AND FACEPLATE COLOR WITH BUILDING FINISHES. ALSO PROVIDE ORTRONICS OR–42100002 DUST COVER FOR MODULAR OPENINGS, COLOR TO MATCH FACEPLATE. PROVIDE (3) CAT–6 CABLES BACK TO IDF ROOM; BERK–TEK LANMARK 1000 – NO SUBSTITUTIONS. 2

PROJECT:
BAY AREA HOSPITAL
MRI UPGRADE

11.48

TITLE: RE-01 - ADDENDUM #2
REF E0.0

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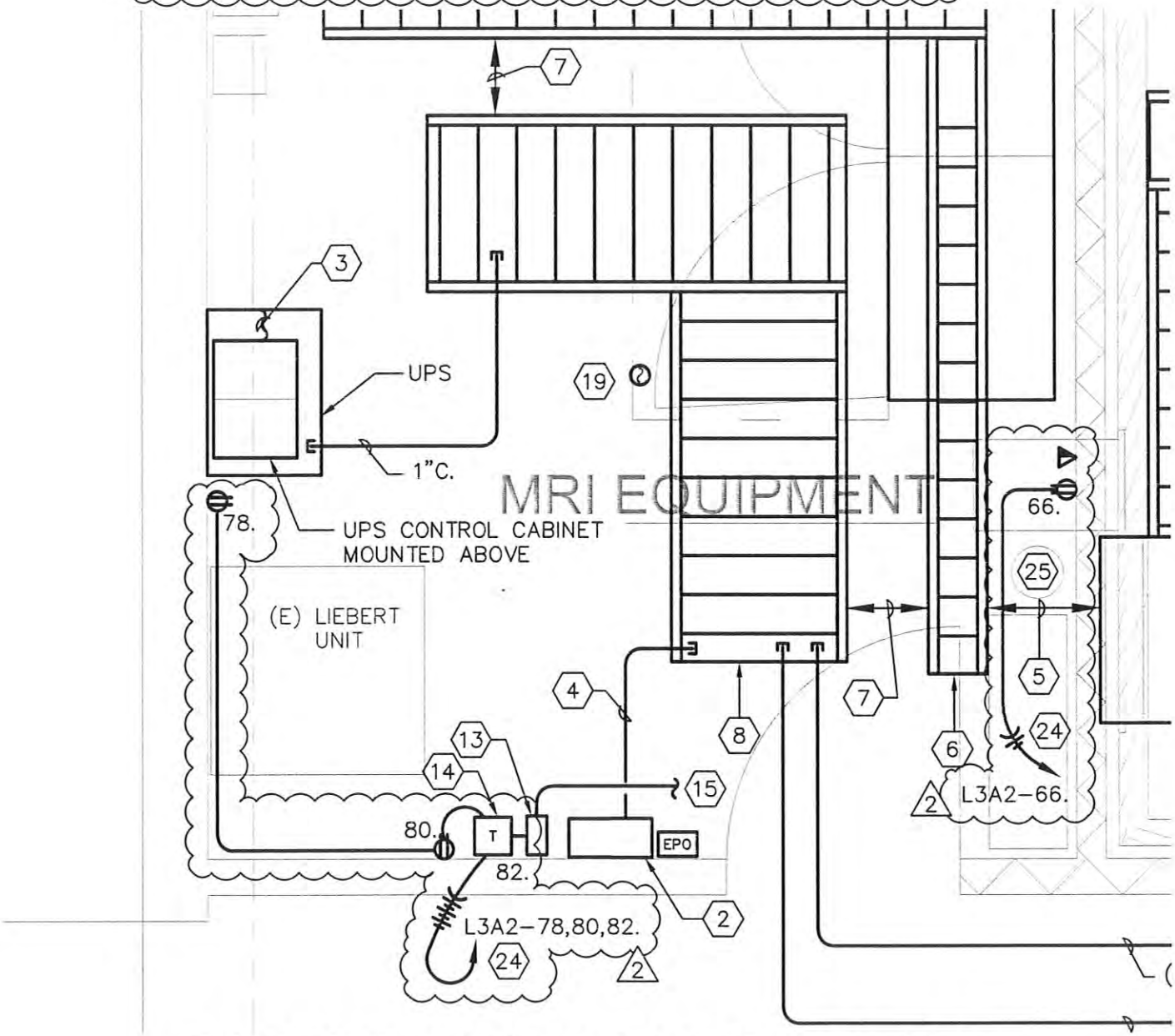
SHEET KEYNOTES

24 PROVIDE NEW 20A/1P CIRCUIT BREAKERS IN PANEL AS REQUIRED. UPDATE PANEL SCHEDULE IN DOOR WITH NEW TYPED PANEL SCHEDULE.

25 PROVIDE CABLE ROUTE FROM EQUIPMENT ROOM TO CONTROL ROOM VIA HALLWAY FOR INJECTOR PUMP HYDRAULIC CONTROL UNIT. CONTRACTOR TO INSTALL OWNER FURNISHED CABLE.



PARTIAL THIRD FLOOR PLAN
1 POWER AND SIGNAL

NORTH

0 1' 2' 4'

SCALE: 1/2"=1'-0"

PROJECT: BAY AREA HOSPITAL MRI UPGRADE	11.48
TITLE: RE-02 - ADDENDUM #2 REF E3.1	

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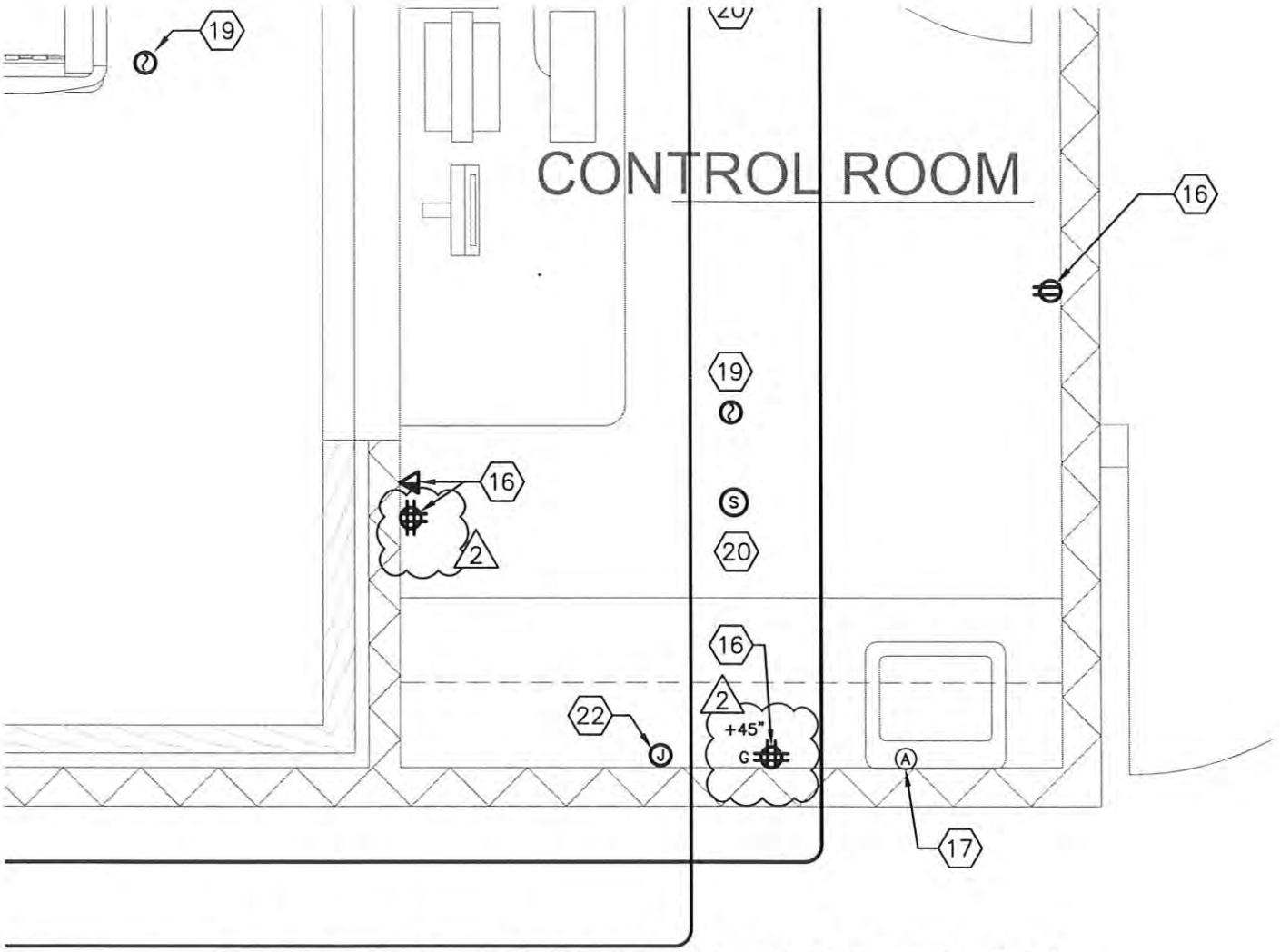
GENERAL SHEET NOTES

A. ALL RACEWAY, BOXES, AND ASSOCIATED ACCESSORIES WITHIN RF ENCLOSURE MUST BE OF NONFERROUS MATERIAL.

B. COORDINATE ALL WORK RELATED TO THE IMAGING EQUIPMENT RACEWAY SYSTEM WITH EQUIPMENT VENDOR REPRESENTATIVE.

C. PROVIDE A PULL-STRING IN ALL EMPTY CONDUITS.

D. MUSIC SYSTEM IN MRI PROVIDED BY SIEMENS. 1



PARTIAL THIRD FLOOR PLAN
1 POWER AND SIGNAL

NORTH

0 1' 2' 4'

SCALE: 1/2"=1'-0"

PROJECT: BAY AREA HOSPITAL MRI UPGRADE	11.48
TITLE: RE-03 - ADDENDUM #2 REF E3.1	

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EMPOWERMR INJECTOR SYSTEM SITE SURVEY AND SITE INSTALLATION INSTRUCTIONS

ACIST Medical Systems, Inc., Eden Prairie, MN 55344
Phone: 952-941-3507 Fax: 952-941-4648

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The written and graphic product descriptions in this manual were effective at the time of printing.
ACIST reserves the right to change specifications and designs, or to discontinue any model without prior notification.
Patents pending

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EmpowerMR Site Survey Checklist ..... Error! Bookmark not defined.

Summary of customer responsibilities 20

Section 1: Introduction

1.1 Purpose of this manual

This document details information and provides site survey instructions and the site survey checklist for the EmpowerMR Injector System. The EmpowerMR will be shown in photos. Except where noted in this Injector Site Survey, facility is responsible for the installation of the EmpowerMR Injector System and ensuring the proper and necessary room and power specifications are available. Facility is responsible for providing complete and accurate information to ACIST regarding the site and engineering designs, and ACIST assumes no responsibility for reliance on such information. Through use of this document, the site will be ensured to receive the proper configuration for their installation.

1.2 Manual organization

The manual is organized into the following sections:

Section 1: Introduction — Identifies the purpose and organization of this manual.

Section 2: System Configuration — Describes the EmpowerMR Injector System.

Section 3: Technical Specifications — Provides power, weight and dimensional specifications.

Section 4: System Requirements — Provides information regarding the electrical requirements, equipment location and room penetrations.

Section 5: Site Survey Checklist — Form to be completed during the site survey visit.

1.3 Manual conventions

This manual uses the following conventions:

- **Bold** indicates emphasis or heading.
- *Note* is used to set off important information from the rest of the text.

This manual also uses the following warning format:

The WARNING symbol alerts you to a hazard that may result in equipment damage or personal injury.

1.4 Labels

Patient Applied Part, degree of protection against electric shock, Type BF, Injector Head.

Attention! Read the user's manual before using.

Potential equalization.

Protective earth (ground).

MR Conditional symbol, identifies an item that has been demonstrated to pose no known hazards in a specified MR environment with specified conditions of use.

MR Unsafe symbol, identifies an item that is known to pose hazards in all MR environments.

With respect to electric shock, fire, mechanical and other specified hazards, only in accordance with UL 60601-1 and CSA C22.2 No.601.1 medical equipment.

Compliance, European directive 93/42/EEC, Medical Device Directive.

IP21

Environmental enclosure rating, protected against objects greater than 12 mm and protected against dripping water, Injector Head

The WEEE (Waste of Electrical and Electronic Equipment) symbol, indicating when the user wishes to discard the product, it must be sent to appropriate facilities for recover and recycling.

Do not tilt out of the upright position.

Section 2: System Configurations

2.1 System configurations

The EmpowerMR Injector System consists of the Injector Head, Remote Control, Hydraulic Controller, Electro-hydraulic Interconnect, and AC line cords (see Fig. 2-1a, 2-1b, and 2-1c). Throughout this manual, the terms *Injector Head* and *Injector* are used interchangeably, and the terms *Remote Control* and *Remote* are used interchangeably.

During operation, the Injector in the scanner room communicates with the Remote in the control room through the hydraulic controller. There is a communication cable (75 feet long) routed between the Remote and the Hydraulic Controller that does not penetrate the scanner room.

For the Hydraulic Controller, only AC Line power is required.

For the Remote, only AC Line power is required. Mounting accessories for the Remote facilitate either desktop or wall mounting.

For the Injector, a flexible Electro-hydraulic bundle (50 feet long) from the Hydraulic Controller provides the following:

- DC power via a wired cable
- Four hydraulic tubes to actuate the hydraulic cylinders
- Bidirectional optical communication link

Two system configurations are possible as shown in Fig. 2-1d and 2-1e. The only difference between the two system configurations is the location of the Hydraulic Controller. In one configuration, the Hydraulic Controller is located in the Equipment Room and in the other it is located in the Control Room, the Equipment Room being the preferred location due to the noise of the Hydraulic Controller. The site survey will state where the Hydraulic Controller is to be installed.

WARNING

The Injector head is **MR Conditional** and is the only part of the EmpowerMR Injector System that should be placed in the MRI scanner room. The Remote Control and Hydraulic Controller are **MR Unsafe** and should never be placed in the MRI scanner room. **Failure to comply may lead to serious injury and/or death.**

Fig. 2-1a: Injector Head

Fig. 2-1b: Hydraulic Controller

Fig. 2-1c: Remote Control

2.2 Mounting system

The Injector Head is mounted to a floor stand as shown in Fig. 2-1a.

The Remote Control includes a pedestal mount for placement on a desk or other flat surface as shown in Fig. 2-1c, or it can be wall mounted.

The Hydraulic Controller is to be placed on a stable, flat level surface.

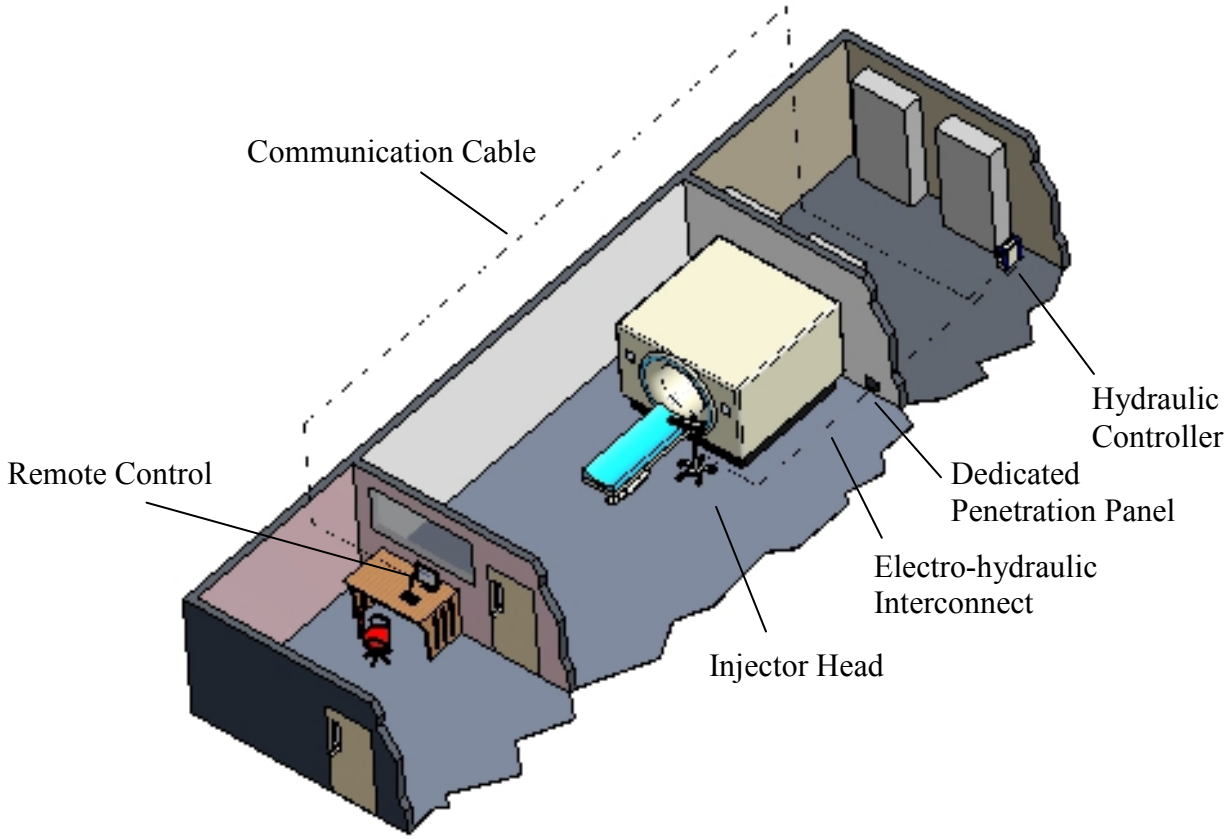

Fig. 2-1d: Hydraulic Controller in Equipment Room

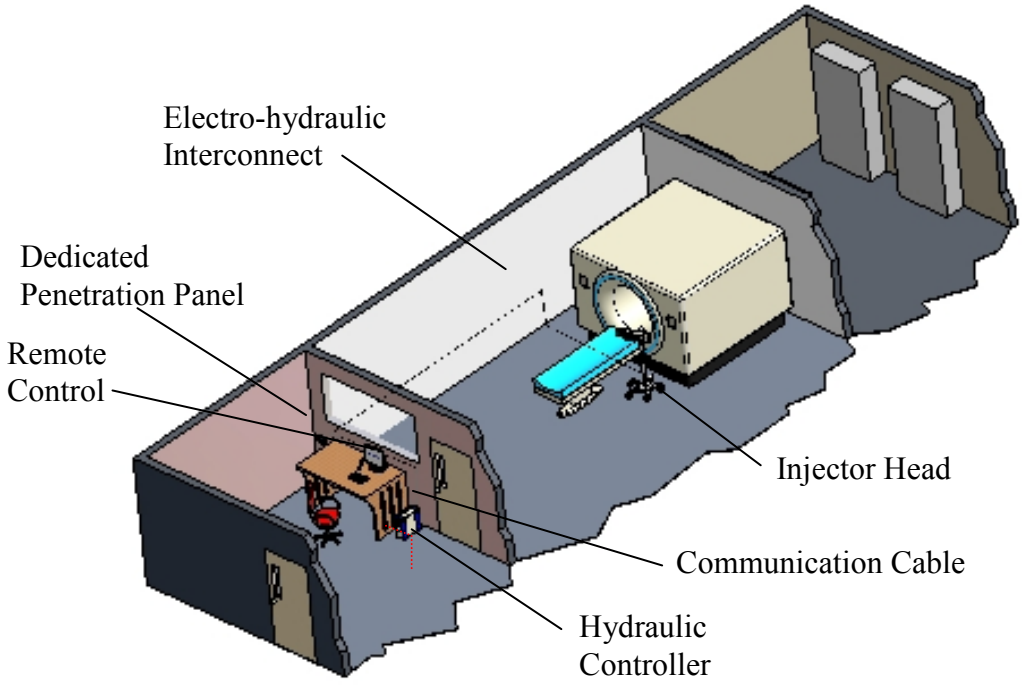

Fig. 2-1e: Hydraulic Controller in Control Room

Section 3: Technical Specifications

3.1 Power

3.1.1 Voltage

Injector Head	SELV (Safety Extra Low Voltage) supplied from the hydraulic controller.
Hydraulic Controller	100-240 VAC. Internal switching power supply that auto-seeks to applied voltage.
Remote	100-250 VAC. Internal switching power supply that auto-seeks to applied voltage.

3.1.2 Wattage

Injector Head	2 VA maximum, supplied from hydraulic controller.
Hydraulic Controller	320 VA Typical when Running 1 VA Typical in Standby Mode
Remote	65 VA maximum

3.1.3 Frequency

Injector Head	N/A (DC Power)
Hydraulic Controller	50 to 60 Hz
Remote	44 to 63 Hz

3.2 Weight

Injector w/Stand	42 pounds (19.1 kg)
Injector Head	16 pounds (7.3 kg)
Hydraulic Controller	47 pounds (21.5 kg)
Remote Control	10 pounds (4.5 kg)

3.3 Dimensions

Injector w/Stand	54" high x 26" wide x 26" deep (1372 mm high x 660 mm wide x 660 mm deep)
Injector Head	17" long x 8" hide x 12" deep (432 mm long x 203 mm high x 305 mm deep)
Hydraulic Controller	19" high x 7" wide x 16" deep (483 mm high x 178 mm wide x 406 mm deep)
Remote Control	13" wide x 11" high x 4" deep (without mounting kit) (330 mm wide x 279 mm high x 102 mm deep)
Electro-hydraulic Interconnect	3/4" diameter (19 mm)

Section 4: System Requirements

4.1 Power requirements

The EmpowerMR Injector System requires a standard, hospital-grade power source with a grounded receptacle. Line cords compatible with local voltages are provided with the system. A power source with a dedicated circuit is recommended for all ACIST Injector systems. Two dedicated receptacles are required for use with the EmpowerMR Injector System. The first receptacle is for the Hydraulic Controller and the second receptacle is for the Remote Control. Power receptacles should be either 120 VAC/60 Hz or 240 VAC/50 Hz. No adjustment to the system is required.

Before installation, take careful note as to where the receptacles are located. Verify that receptacles are within reach of the supplied line cords.

Note: Extension cords should not be used. If receptacles are not within reach of the supplied line cords, it is the facility's responsibility to have proper receptacles installed.

The length of the supplied line cords are as follows:

- Hydraulic Controller:8.2 Feet (2.5 Meters)
- Remote Control: 6.5 Feet (2 Meters)

4.2 Equipment location

4.2.1 Injector

The Injector is placed in the Scanner Room and should be capable of maneuvering to both the front and rear of the gantry.

Note: Patient access to the gantry must not be impeded by the Injector system.

Cables on the floor are a potential hazard and should not be in the patient or hospital staff access path.

4.2.2 Hydraulic Controller

As previously described in Section 2, System Configurations, the location of the Hydraulic Controller can be either in the Equipment Room or the Control Room. Preferably, the Hydraulic Controller should be located in the Equipment Room. The Equipment Room should have better provisions for installing a penetration panel as well as providing better protection from damage to the Hydraulic Controller.

The Electro-hydraulic interconnect that runs from the Hydraulic Controller, through the penetration panel, and to the Injector is 50 feet long. The location of the Hydraulic Controller must be such that the 50 feet of cable is sufficient to maneuver the Injector to both the front and rear of the gantry.

Note: The cable length is limited to 50 feet only.

The Communications cable that runs from the Hydraulic Controller to the Remote Control is 75 feet long. This must also be taken into consideration when locating the Hydraulic Controller.

Note: The Communications cable does not go through the Scanner Room and therefore does not pass through a waveguide. An accessible conduit or cable run between the Remote Control and Hydraulic Controller is required.

4.2.3 Remote Control

The Remote Control is to be placed in the Control Room where it is easily accessible during a scan.

4.3 ACIST penetration requirements

The EmpowerMR Injector System requires a dedicated penetration panel (see Fig. 4-2). **It is the facility's responsibility to have this penetration panel manufactured and installed; ACIST personnel will not install the penetration panel.** This penetration panel needs to be professionally installed by either the scanner room manufacturer, contractor or other qualified personnel. It is

not recommended to use the scanner manufacturer's penetration panel. The installation of the panel needs to be completed before or during the injector system installation.

The ACIST penetration panel is used to allow the Electro-hydraulic interconnect to pass into the Scanner Room. This panel must have a waveguide for the hydraulic and fiber optic connections and three (3) mounting holes for the ACIST supplied filters. These filters are used for the DC power between the Hydraulic Controller and the Injector. ACIST personnel will install the filters during the Injector System installation.

Typically, the scanner manufacturer's penetration panel will be between the Equipment Room and the Scanner Room. In the Scanner Room, it is common for the panel to be in a closet or behind a cabinet; this is done for aesthetic reasons to hide the cabling.

Ideally, the Injector penetration panel should also be located in the closet or cabinet. An empty space on the wall large enough to accommodate the penetration panel, shown in Fig. 2, is all that is required. If this is not possible, an alternate location would be in the wall between the Equipment Room and Scanner Room, above a drop ceiling. Locating the panel above a drop ceiling ensures that the filters will not get accidentally damaged. However if the panel is located above a drop ceiling, the Electro-hydraulic interconnect will be visible running down the wall to the injector. Lastly, the penetration panel can be located lower on the wall (with the panel closer to the ground, the visible interconnect running along the wall is eliminated), but this may require some finishing work and/or protective covering added to cover the penetration panel.

The dimensions of the filters are shown in Fig. 4-1. The dimensional requirements for the penetration panel are shown in Fig. 4-2. Pictures of the penetration panel and filters are shown in Figs. 4-3, 4-4 and 4-5.

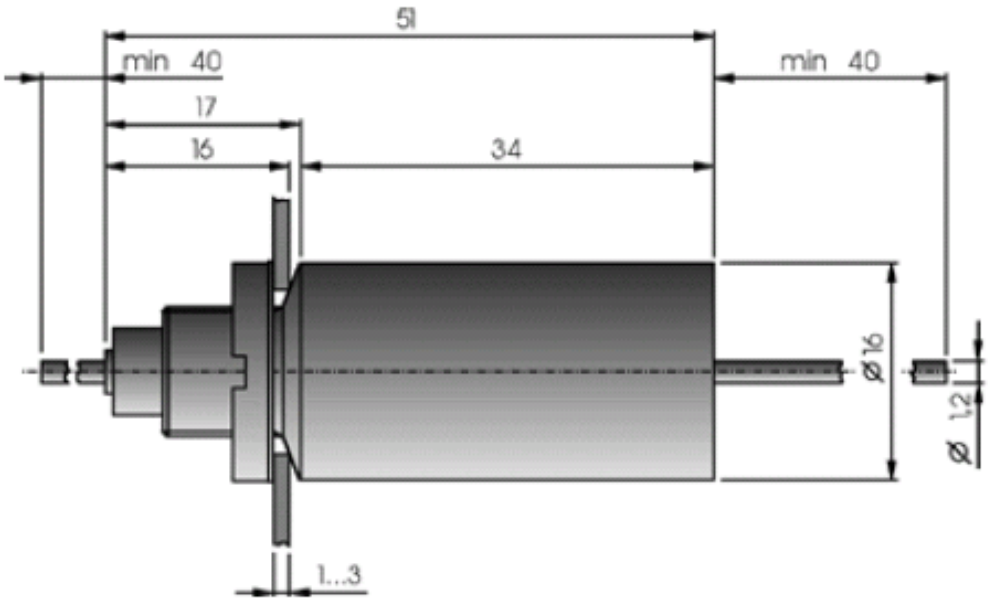

Fig. 4-1: DC Filters
(All dimensions in mm)

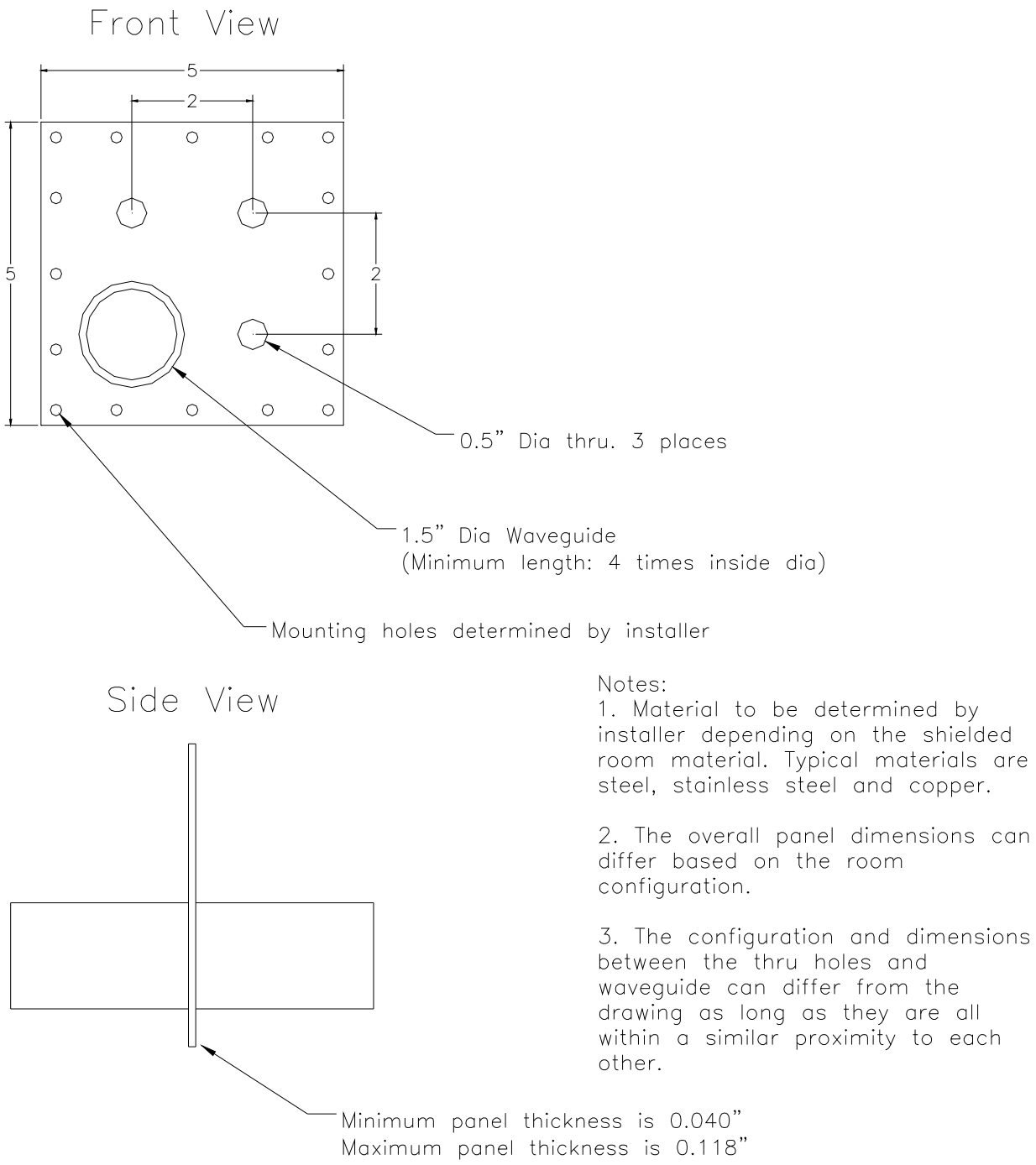
Front View
5
2
5
2
0.5" Dia thru. 3 places
1.5" Dia Waveguide
(Minimum length: 4 times inside dia)
Mounting holes determined by installer
Side View
Notes:
1. Material to be determined by installer depending on the shielded room material. Typical materials are steel, stainless steel and copper.
2. The overall panel dimensions can differ based on the room configuration.
3. The configuration and dimensions between the thru holes and waveguide can differ from the drawing as long as they are all within a similar proximity to each other.
Minimum panel thickness is 0.040"
Maximum panel thickness is 0.118"

Fig. 4-2: Dedicated Penetration Panel
(Dimensions are in inches, not drawn to scale)

Fig. 4-3: Picture of Penetration Panel

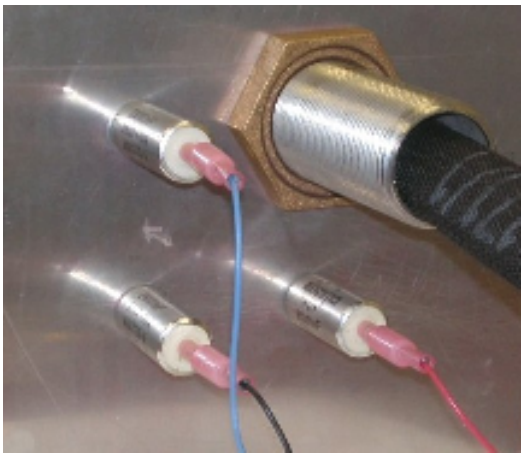

Fig. 4-4: Picture of Penetration Panel Installed with Filters (view from equipment room)

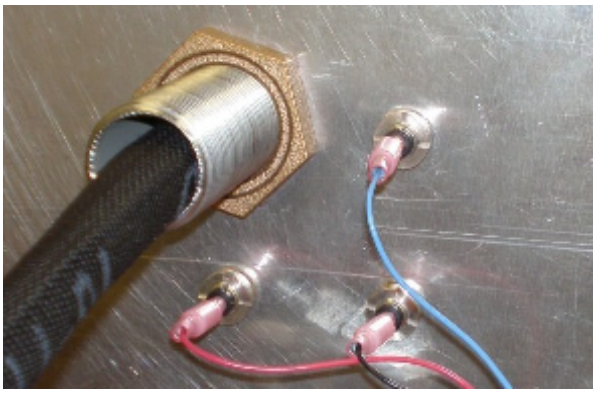

Fig. 4-5: Picture of Penetration Panel Installed with Filters (view from scanner room)

Section 5: MR SITE SURVEY CHECKLIST

Prior to shipment of an Empower Injector System (including accessories) this form must be completed and returned to the address provided below**. PLEASE PRINT CLEARLY TO HELP ENSURE SUCCESSFUL INSTALLATION.**

ACIST Medical Systems
7905 Fuller Rd
Eden Prairie, MN 55344
Attn: Sale Orders
Phone: 1-888-667-6648 Ext 564
Fax: (612) 656-2318
E-mail: sales.orders@acistmedical.com

Date: _____

Site Name: _____

Address (complete):_____

City: _____ State _____ Zip Code: _____

Contact Name: _____ Phone_____

Email Address:____ _____ Fax No: _____

Please provide name & phone number of OEM engineer or site coordinator:

_____

_____.

1. Injector is being placed in:

☐new MR suite ☐remodeled MR suite ☐existing MR suite

2. If this is a new or remodeled suite, is the construction complete? ☐Yes ☐No

Anticipated completion date: _____

3. Scanner manufacturer:

☐GE ☐Philips ☐Siemens ☐Toshiba ☐Hitachi

☐other: _____ magnet strength: _____

4. Is scanner currently operational (magnet is on)? ☐Yes ☐No

Section 5: MR SITE SURVEY CHECKLIST

5. Scanner shielding room information (name plate typically found on scanner room door):

   manufacturer:_____

   contact name:_____ phone number: _____

6. Is the system replacing an existing injector system? ☐Yes ☐No

   If yes, which manufacturer: ☐Medrad ☐Liebel ☐Nemoto

   other: _____ model: _____

7. MR suite layout:

   Is a layout available showing the Control, Scanner and Equipment Rooms? YES / NO

   If No, provide the following digital photos to Michael Moore:

   - location of scanner and existing scanner penetration panel
   - proposed location of ACIST penetration panel (picture from both sides)
   - proposed location of Hydraulic Controller, Remote Control and Injector
   - electrical outlets in both the equipment room and the console area.

8. ACIST Penetration Panel:

   Is there a location for the panel in the Equipment Room? ☐Yes ☐NO

   If yes, does this location require finishing work after the panel is installed? ☐Yes ☐NO

   Is there an identified location for the panel in the Control Room? ☐Yes ☐NO

   If yes, does this location require finishing work after panel is installed? ☐Yes ☐NO

9. Other requirements:

   Is an electrical outlet available and within reach of the Remote Control? ☐Yes ☐NO

   Is an electrical outlet available and within reach of the Hydraulic Controller? ☐Yes ☐NO

   Is there an accessible 1.5 conduit or cable available to run the communications cable from the Remote Control to the Hydraulic Controller? ☐Yes ☐NO

   Are locations of Remote Control and Hydraulic Controller situated within reach of the 75 ft. communications cable? ☐Yes ☐NO

   Are locations of Injector, Hydraulic Controller and Penetration Panel within reach of the 50 ft. electro-hydraulic interconnecting cable? ☐Yes ☐NO

10. Digital photos must accompany the site survey documenting that the penetration panel has been installed. Photos should show the holes for both (3) filters and the wave guide. (Please refer to section 4.3 thru 4.6 for specific details.)

11. Tentative date for injector delivery on site: _____

12. Tentative date for Clinical Applications Specialist to be on site: _____

13. If required, did you note/order the Iris Remote viewer option in the P.O.? YES / NO

***If this requires networking, please complete the IRiS Site Survey.**

Customer Responsibilities

The following list summarizes the responsibilities of the customer/facility where the EmpowerMR Injector System is being installed.

- Standard, hospital grade power source with a grounded receptacle within 8.2 feet of the Hydraulic Controller (see Section 4.1).
- Standard, hospital grade power source with a grounded receptacle located within 6.5 feet of the Remote Control (see Section 4.1).
- Installation of cable runs or 1 ½" – 2" conduits (for the communication cable between the Hydraulic Controller and the Remote Control). These are supplied and installed by the facility. **Please note – a pull chord must be available.**
- Manufacture and installation of the dedicated penetration panel (see Section 4.3). Once the pen-panel has been installed, **DO NOT cover the holes.** (i.e., with plywood, etc.)
- Access to both sides of the scan room and equipment room is needed to install the filters.
- Customer must sign the MR letter which explains the penetration requirements. (*See sales force for a copy of the letter.)*

Special requirements (i.e., Union facilities will have labor guidelines.):

_____

_____

Lead tech name:_____ Phone number:_____

_____ _____

Department Director / Manager (signature) Date

_____ _____

TSM or RSM (signature) Date